

Patapsco/Back Basin Summary

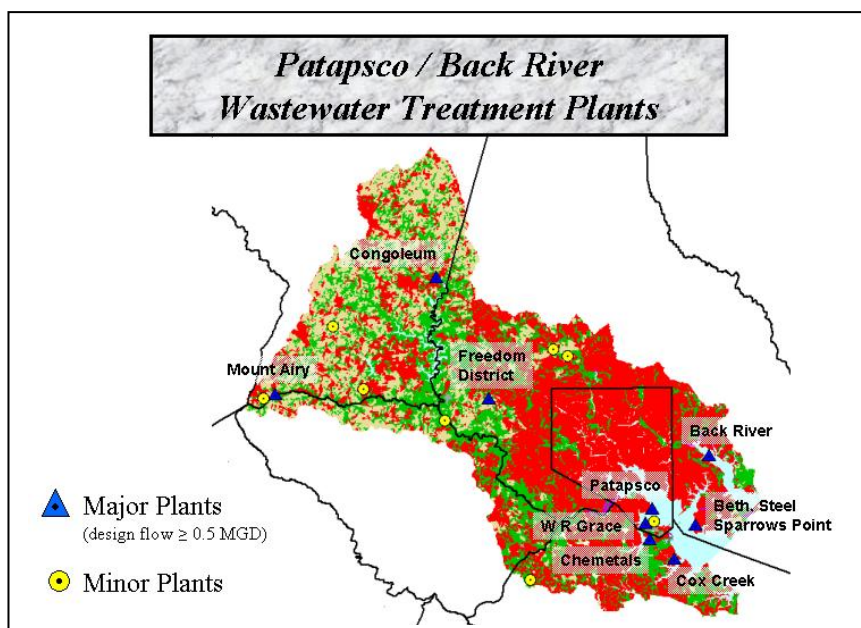
Executive Summary
1985-2003 data, January 2005

The Patapsco/Back Basin is highly populated and over half of the watershed is developed urban lands (industrial, residential, and institutional). Point sources (municipal wastewater treatment plants and industrial outputs) contribute most of the nitrogen and phosphorus. Despite improvements in nitrogen and phosphorus loadings and concentrations, water quality is still generally poor in the tidal areas of the Patapsco and Back Rivers. Biological communities reflect this poor water quality, with only very small areas of bay grasses, poor benthic community health, and poor phytoplankton community health. A significant mahogany tide occurred in the Patapsco in December 2004.

LOADINGS (based on watershed model)

Modeled nitrogen, phosphorus, and sediment loadings have decreased.

- Total nitrogen loadings have decreased over 50 percent from 1985 to 2002 (down from 22 to 11 million pounds). Point sources are still the dominant source contributing 75 percent of the nitrogen, but urban non-point sources are increasingly important and contribute almost 20 percent of the nitrogen.
- Total phosphorus loadings have decreased almost 60 percent from 1985 to 2002 (down from 1.4 to 0.6 million pounds). Point sources contribute a little over half and urban non-point sources a little over 40 percent.
- Sediment loadings have declined only about 13 percent from 1985 to 2002 (down from 55,000 tons to 48,000 tons). Urban non-point sources contribute more than half, and agricultural lands contribute about a third.



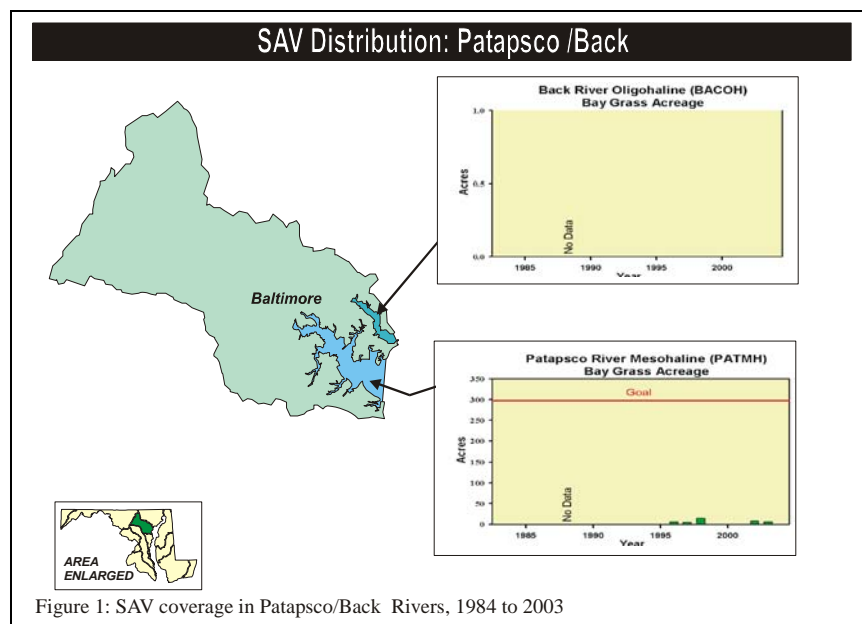
LONG-TERM TIDAL WATER QUALITY (based on monitoring concentration data)

Commensurate with decreases in loadings, water quality parameters have generally improved. An exception is dissolved oxygen, which has worsened considerably at the Patapsco station. In spite of significant improvements, water quality conditions are still poor in the tidal areas.

- Although total nitrogen and phosphorus levels have declined in the Patapsco and Back Rivers, respectively, levels are still very high (poor condition).
- Sediments have declined in the Patapsco River, but there is no significant decline in the Back River. Sediment levels are relatively fair as compared to the earlier baseline period, but water clarity remains poor.
- Algae levels have decreased by a third in the Back River, but there is no decline in the Patapsco, and conditions remain poor with far too much algae.
- Dissolved oxygen levels are poor (< 2 mg/L) at the deep Patapsco River station, but good (> 5 mg/L) at the shallow Back River station. Continuous monitoring data at Fort McHenry in the Patapsco show dissolved oxygen levels were inadequate much of the time in summer of 2004. See www.eyesonthebay.net.

BIOLOGICAL and ECOSYSTEM MONITORING

Bay grasses and biological communities are all in poor condition.



- Bay grass beds in the Back River are not large enough to be recorded and less than 10 acres have been found in the Patapsco, nowhere near the goal of 298 acres.
- Benthic community condition is mostly degraded in the Patapsco and moderately degraded in the Back River. There has been no significant improvement since 1985.
- Phytoplankton community condition in

the Patapsco River is poor.

- A significant mahogany tide occurred in the Patapsco River in December 2004. Mahogany tides are not really tides, but are actually dinoflagellate blooms. In the Chesapeake these blooms can be potentially toxic to shellfish, and can reduce the amount of oxygen available to living resources in the immediate area. Mahogany tides are most common in the spring, but can occur in any season.
- No recent data are available for the zooplankton community due to budget cuts.
- Fish ladders on dams and stream bank stabilization has restored much anadromous fish habitat in the Patapsco River.
- The Patapsco station is largely phosphorus limited in the spring and fall. In summer, however, nitrogen limitation occurs at some times, while phosphorus limitation occurs at others. The Back River station is largely nutrient-saturated all year.

For more detailed information see the complete basin summary at:

http://www.dnr.state.md.us/bay/tribstrat/basin_summaries.html.